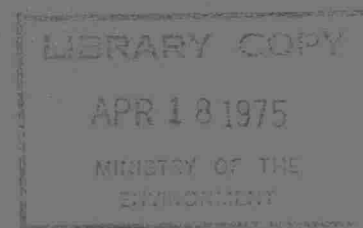


OPERATING SUMMARY

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION



SIDNEY TWP. - (BATAWA)

WATER POLLUTION CONTROL PLANT

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Ontario

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REGIONAL OPERATIONS
J. Barr

REGIONAL OPERATIONS DIVISION

DIRECTOR, SOUTHEASTERN REGION
E. McIntyre

MANAGER, UTILITY OPERATIONS
A. Symmonds

SIDNEY TWP. - (BATAWA)
WATER POLLUTION CONTROL PLANT

operated for

THE TOWNSHIP OF SIDNEY (BATAWA)

by the

MINISTRY OF THE ENVIRONMENT

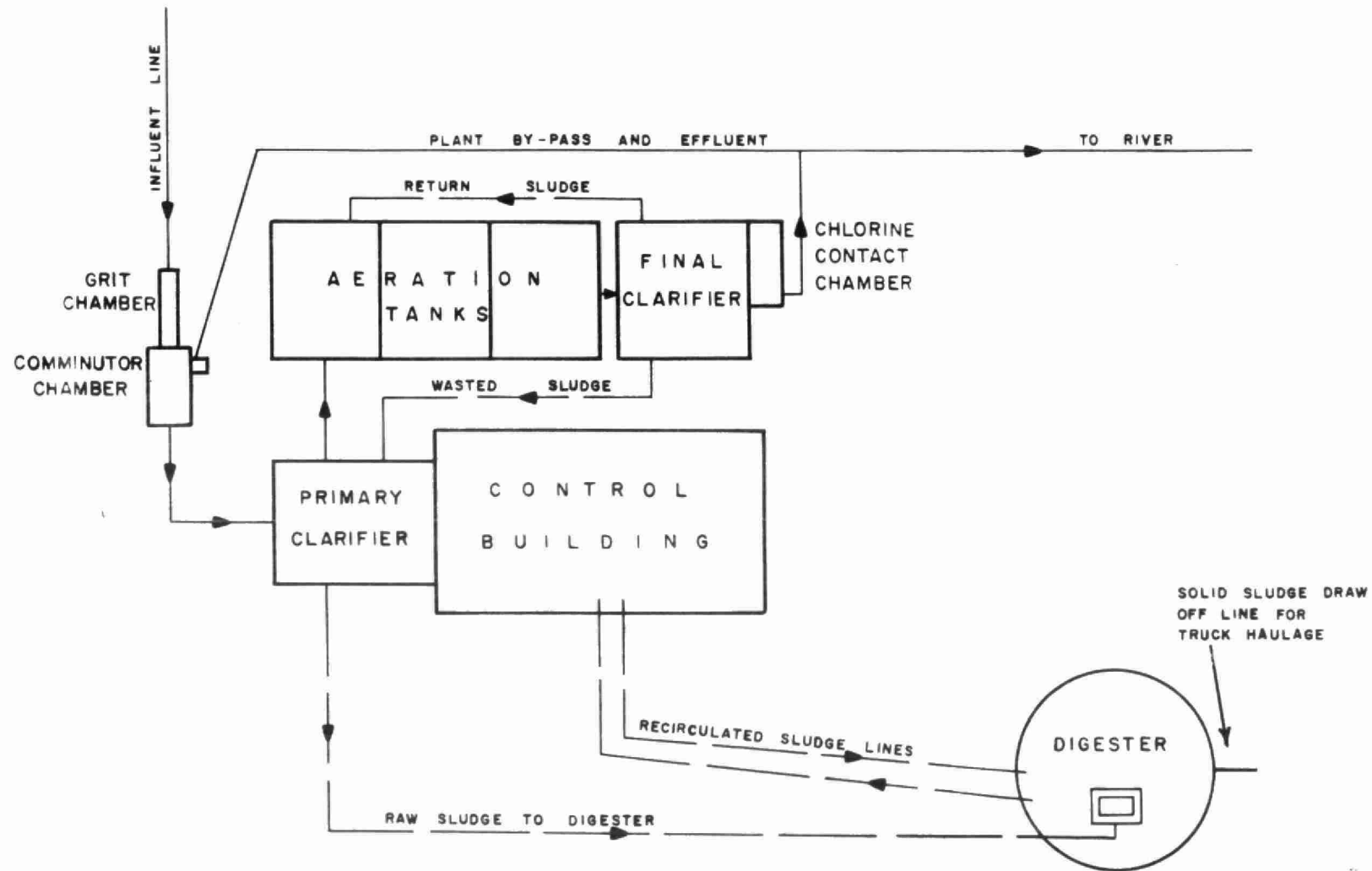
1973 ANNUAL OPERATING SUMMARY

prepared by
Plant Performance Unit
TECHNICAL SERVICES BRANCH
T. Cross, Director

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TOWNSHIP OF
SIDNEY - BATAWA W P C P
FLOW CHART



DESIGN DATA

PROJECT Sidney Twp. WPCP

PROJECT NO. 2-0121-62

TREATMENT Activated Sludge

DESIGN FLOW 0.12 mgd

DESIGN POPULATION 1,500

BOD - Raw Sewage 220 mg/l
- Removal 90%

SS - Raw Sewage 250 mg/l
- Removal 90%

PRIMARY TREATMENT

Grit Removal

Type: Channels, manually cleaned
Size: Two 9' 3" x 9" x 6" swd
Flow Velocity: 0.6 fps
Retention: 16.6 sec

Comminution

- One Chicago Pump, Model 10A

Screening

One 1½' c-c on comminutor bypass
One 1½' c-c on plant bypass

Primary Sedimentation

Size: One 16' x 16' x 11' swd
(9,130 gal)
Retention: 1.83 hr
Loading: Surface, 468 gal/ft²/day
Weir, 3750 gal/ft/day

SECONDARY TREATMENT

Type: Diffused air; three-pass
Size: One 30' x 20' x 10' swd
(37,400 gal)
Retention: 7.5 hr

Diffusers: Ceramic Tubes

Spacing: 9 per pass (2 passes)
12 per pass (1 pass)

Air Supply

Type: Sutorbilt
Size: Two 140 scfm @ 6 psi

Secondary Sedimentation

Type: Falk
Size: One 20' x 12' x 10' swd
(15,000 gal)
Retention: 3.0 hr
Loading: Surface, 500 gal/ft²/day
Weir, 5000 gal/ft/day

CHLORINATION

Type: Advance
Size: 50 lb/day

Chlorine Contact Chamber

Size: One 10' x 4' x 8' (2,000 gal)
Retention: 24 min

OUTFALL

- to Trent River

SLUDGE HANDLING

Type: Fixed cover, integral heat
exchanger coils
Size: One 20' dia x 17' 4"
(6,000 cu ft or 37,500 gal)
Loading: 1.5 lb/cu ft/mo

'73 Review

GENERAL

At the beginning of 1973 chemical storage, mixing and feeding equipment was installed to feed alum for removal of phosphorus from the plant effluent as required by the Ministry of the Environment.

During the year the sludge pump and chlorinator were overhauled and the comminutor motor was overhauled. The primary and final tanks and the chlorine contact chamber were cleaned.

EXPENDITURES

The cost of operating the sewage works during 1973 was \$14,980, somewhat above the operating budget of \$11,380. The operating budget did not allow sufficiently for the effects of infiltration over the past few years.

PLANT PERFORMANCE AND TREATMENT DATA

Flows for the year totalled 59.9 million gallons, down dramatically from the previous year's total of 93 million gallons. The average daily flow dropped from 250,000 gallons per day in 1972 to 160,000 gallons per day in 1973.

The sewage BOD was reduced by 83 per cent from an influent concentration of 96 mg/l to an effluent concentration of 16 mg/l. The sewage suspended solids was reduced by 87 per cent from an influent concentration of 130 mg/l to an effluent concentration of 17 mg/l. Phosphorus concentrations averaged 3.3 mg/l in the influent and 1.6 mg/l in the effluent for a reduction of 53 per cent.

A total of 244 thousand gallons of raw sludge was pumped to the digester and 29 thousand gallons of digested sludge was removed from the plant by tank truck. The plant effluent was disinfected with a total of 2,220 pounds of chlorine.

PLANT LOADING

Flows during 1973 averaged 133 per cent of design capacity, down from 208 per cent in 1972. The BOD loading increased slightly from 52 per cent of plant design capacity in 1972 to 58 per cent in 1973. The suspended solids loading decreased from 77 per cent of capacity in 1972 to 69 per cent in 1973.

CONCLUSIONS

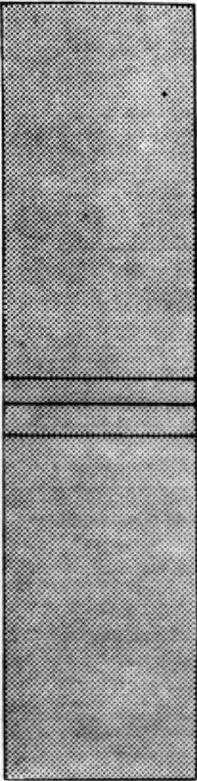
The plant operated well considering that it was hydraulically overloaded with the effluent BOD, suspended solids, and phosphorus levels very close to Ministry of the Environment requirements.

Continued efforts by the municipality to reduce infiltration into the sewer system resulted in a considerable reduction in flows to the plant. The 1973 flows were reduced to nearly half the flows experienced during the previous years. As a result of this flow reduction a much greater proportion of the sewage was provided with secondary treatment rather than just primary treatment. The raw sewage BOD and suspended solids strengths indicate that the sewage is still relatively weak in comparison to other municipalities, suggesting that infiltration of the sanitary sewer system could be further reduced. Flows are still in excess of plant capacity.

Efforts to locate and reduce infiltration into the sanitary sewer system should be beneficial and must be continued. The alternative is an expansion of the plant. The plant has sufficient BOD and suspended solids capacity to serve a considerably greater population if the infiltration problems can be overcome.

ANNUAL COSTS

1973 OPERATING COSTS



● SALARIES & WAGES	56 %
● EMPLOYEE BENEFITS	2 %
● TRANSPORTATION & COMMUNICATIONS	3 %
● SERVICES	3 %
● SUPPLIES & EQUIPMENT	36 %
● AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS	NIL
● TRANSFER PAYMENTS	NIL
● OTHER TRANSACTIONS	NIL

YEARLY OPERATING COSTS

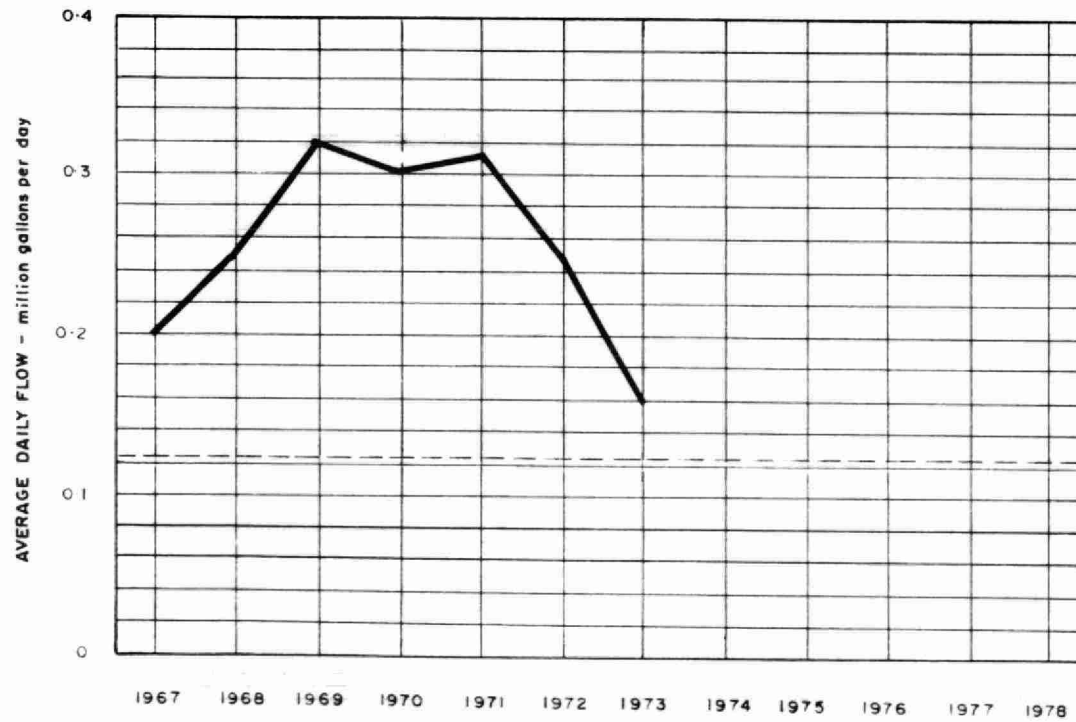
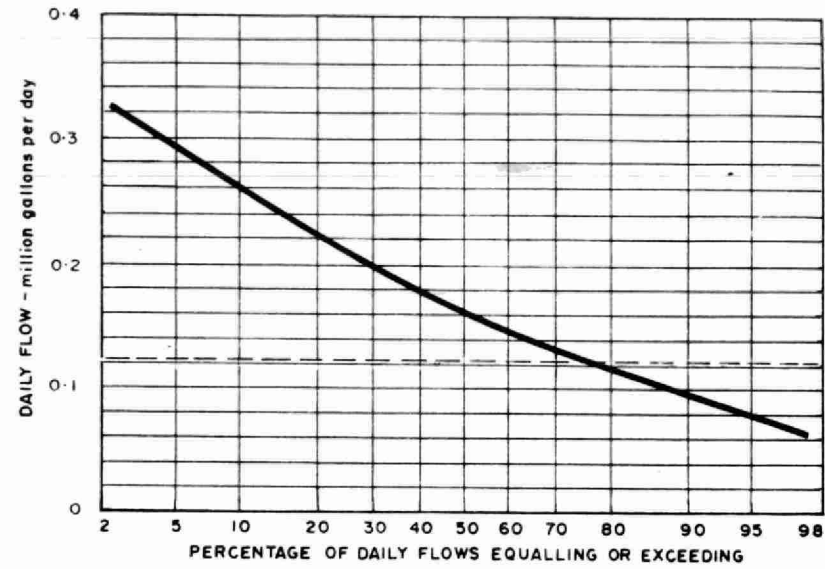
YEAR	SEWAGE TREATED in million gallons	TOTAL OPERATING COSTS	UNIT COSTS	
			\$/M.G.	¢/lb BOD
1968	90	\$ 7,563	84	16
1969	119	9,315	78	31
1970	108	9,800	91	39
1971	111	11,434	103	81
1972	84	12,384	141	36
1973	60	14,980	250	31

OPERATING EXPENDITURES

SALARIES AND WAGES	<u>\$ 8,442</u>
EMPLOYEE BENEFITS	<u>283</u>
TRANSPORTATION & COMMUNICATIONS	<u>418</u>
SERVICES	<u>474</u>
SUPPLIES AND EQUIPMENT	<u>5,364</u>
ACQUISITION/CONSTRUCTION OF PHYSICAL ASSETS	<u>0</u>
TRANSFER PAYMENTS	<u>0</u>
OTHER TRANSACTIONS	<u>0</u>
TOTAL	<u>\$ 14,980</u>

PROCESS DATA

FLows

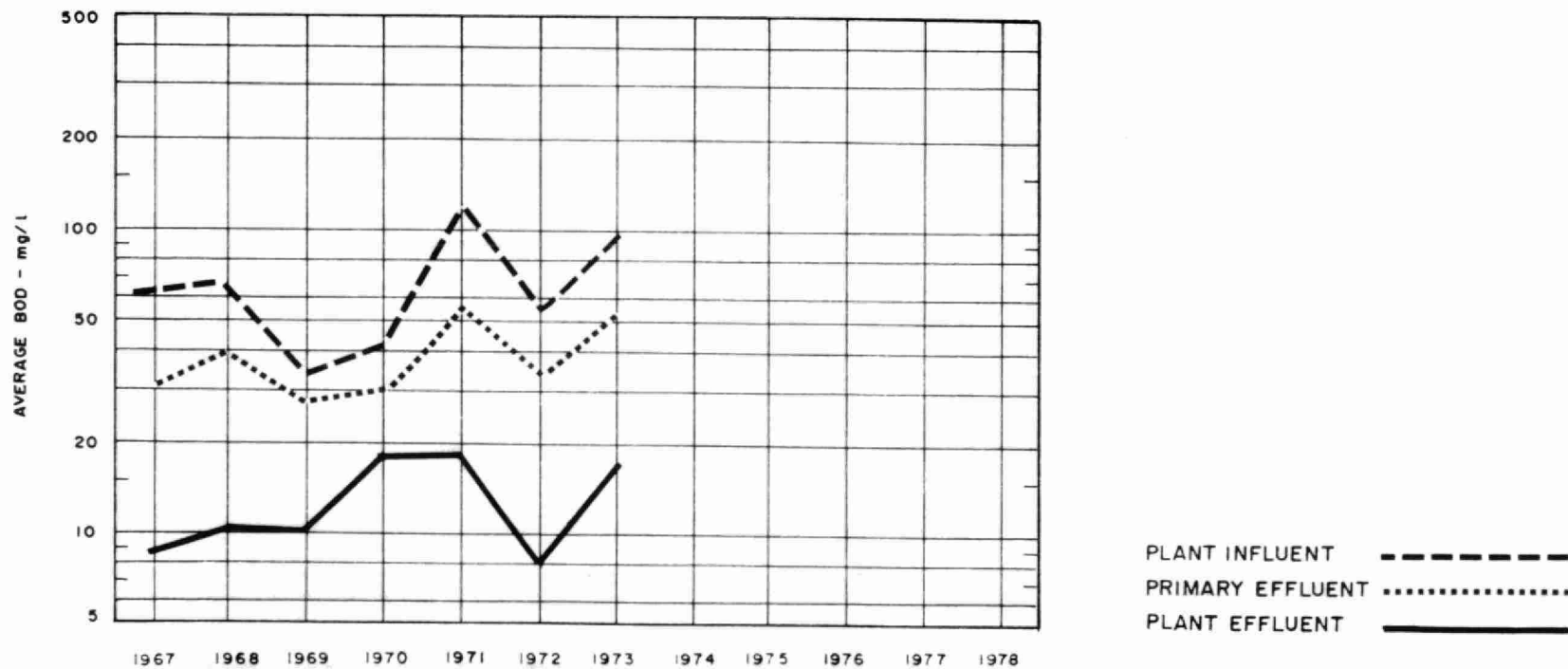
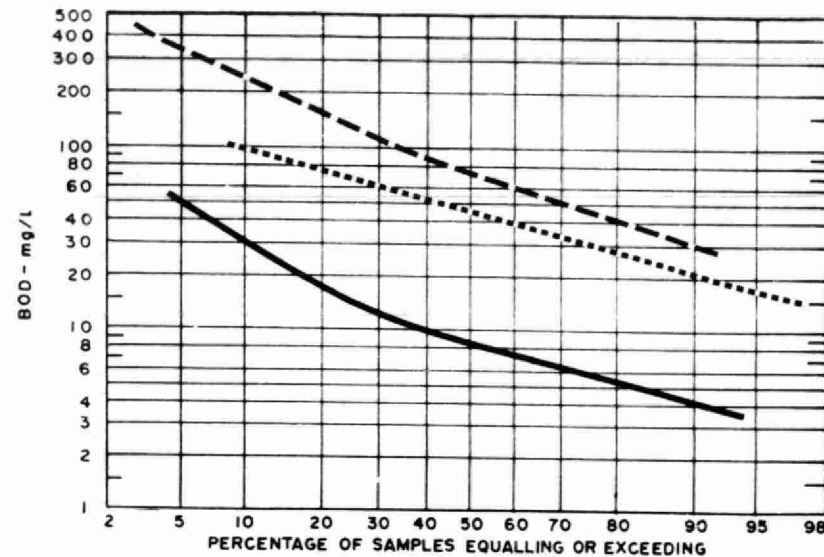


DESIGN CAPACITY - - - - -

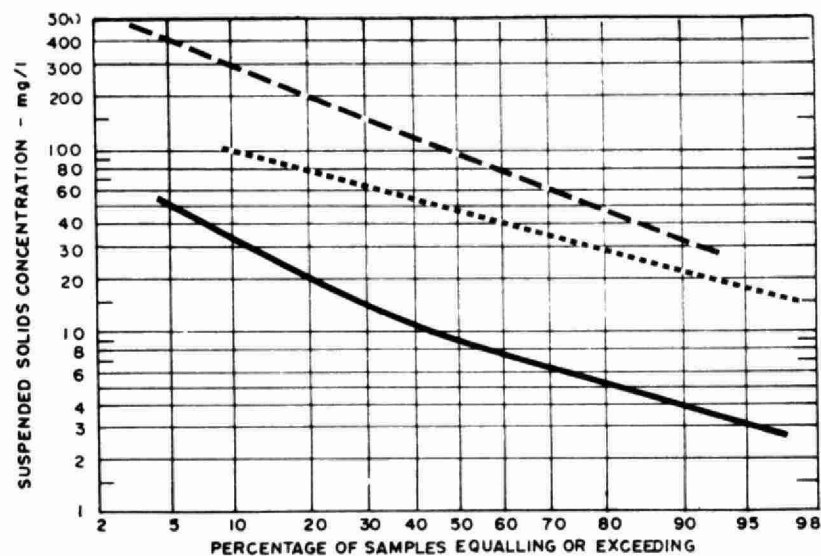
PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l P	EFFLUENT mg/l P
						%	10 ³ pounds			%	10 ³ pounds		
JAN	6.84	0.22	0.31	100	31	70	4.9	66	25	62	2.8	2.9	1.4
FEB	4.67	0.17	0.38	100	7	93	4.3	69	13	81	2.6	3.2	0.6
MAR	8.22	0.27	0.38	86	15	83	5.8	200	24	88	14.0	2.2	1.2
APR	6.82	0.23	0.44	130	10	92	8.3	200	10	95	13.0	5.3	2.1
MAY	5.03	0.16	0.24	72	9	88	3.2	130	7	95	6.3	2.6	1.5
JUNE	3.76	0.13	0.20	530	7	99	20.0	540	10	98	20.0	7.3	2.5
JULY	4.09	0.13	0.14	59	6	90	2.2	110	38	64	2.8	2.5	2.0
AUG	3.90	0.13	0.17										
SEPT	3.23	0.11	0.20	100	84	17	0.5	120	12	90	3.4	4.1	3.8
OCT	2.79	0.09	0.19	110	7	94	2.8	140	18	87	3.5	7.1	5.2
NOV	5.23	0.17	0.27	34	14	58	1.0	40	18	55	1.1	1.9	1.9
DEC	5.31	0.17	0.26	93	16	83	4.1	66	10	85	3.0	2.1	1.9
TOTAL	59.89	-	-	-	-	-	-	-	-	-	-	-	-
AVG.		0.16	MAXIMUM 0.44	96	16	83	5.1	130	17	87	6.6	3.3	1.6
No. of Samples	-	-	-	57	57	-	-	57	57	-	-	57	57

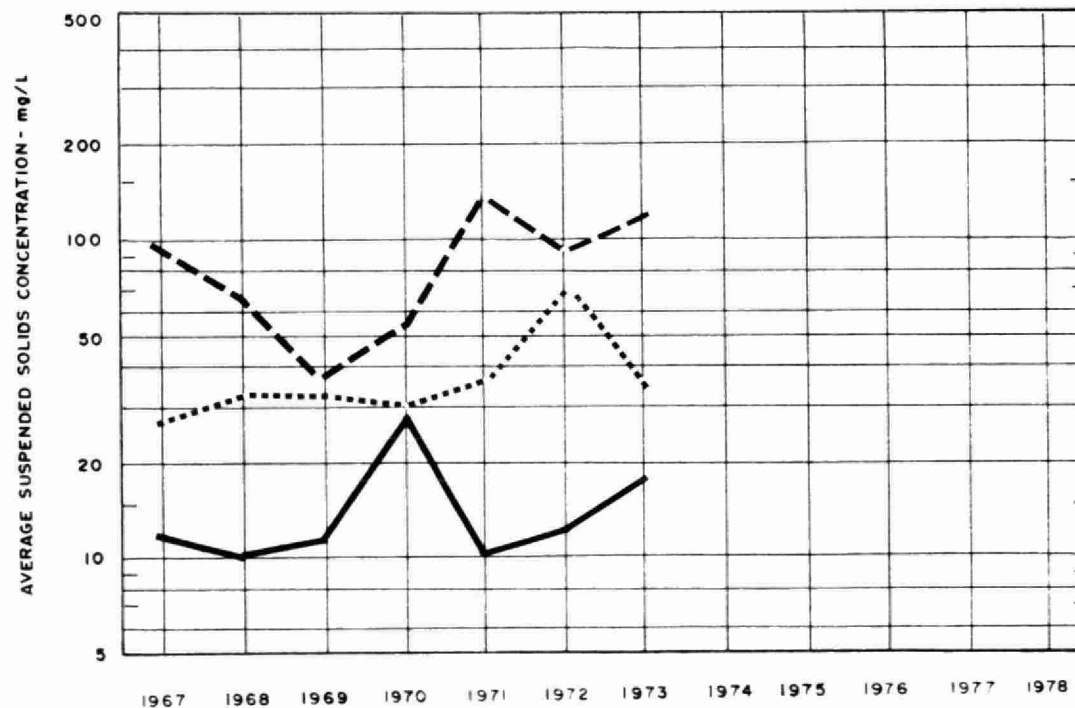
BIOCHEMICAL OXYGEN DEMAND



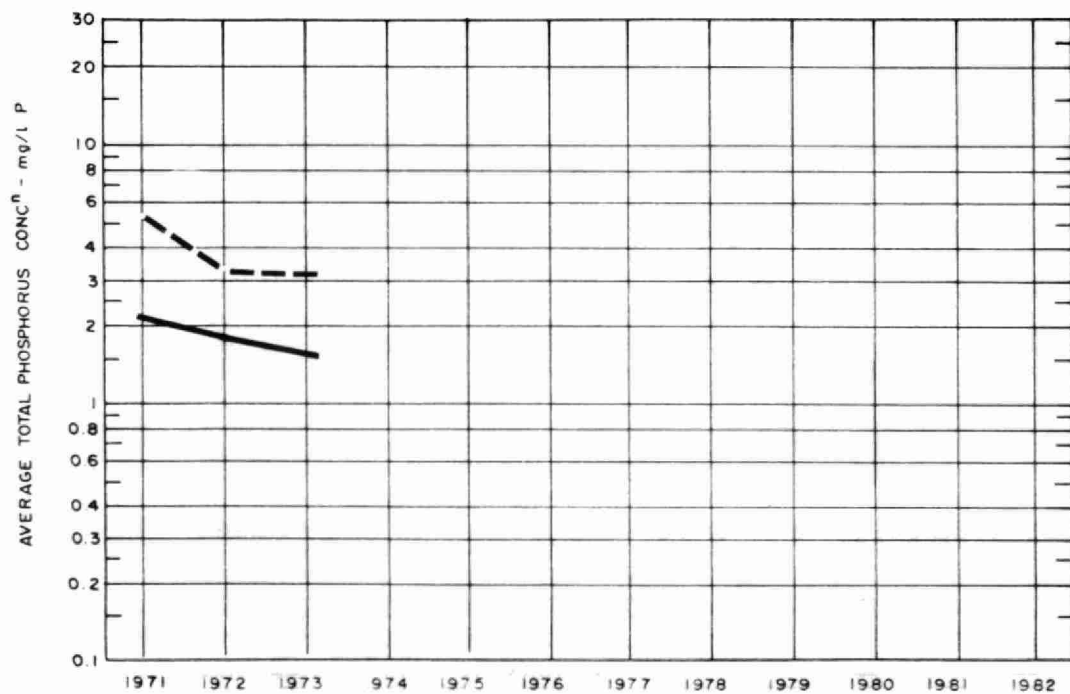
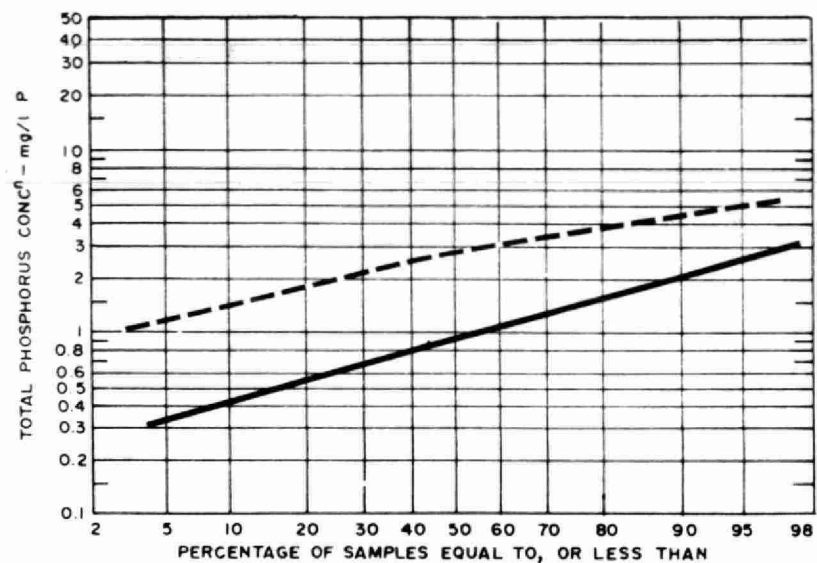
SUSPENDED SOLIDS



PLANT INFLUENT - - - - -
 PRIMARY EFFLUENT
 PLANT EFFLUENT _____



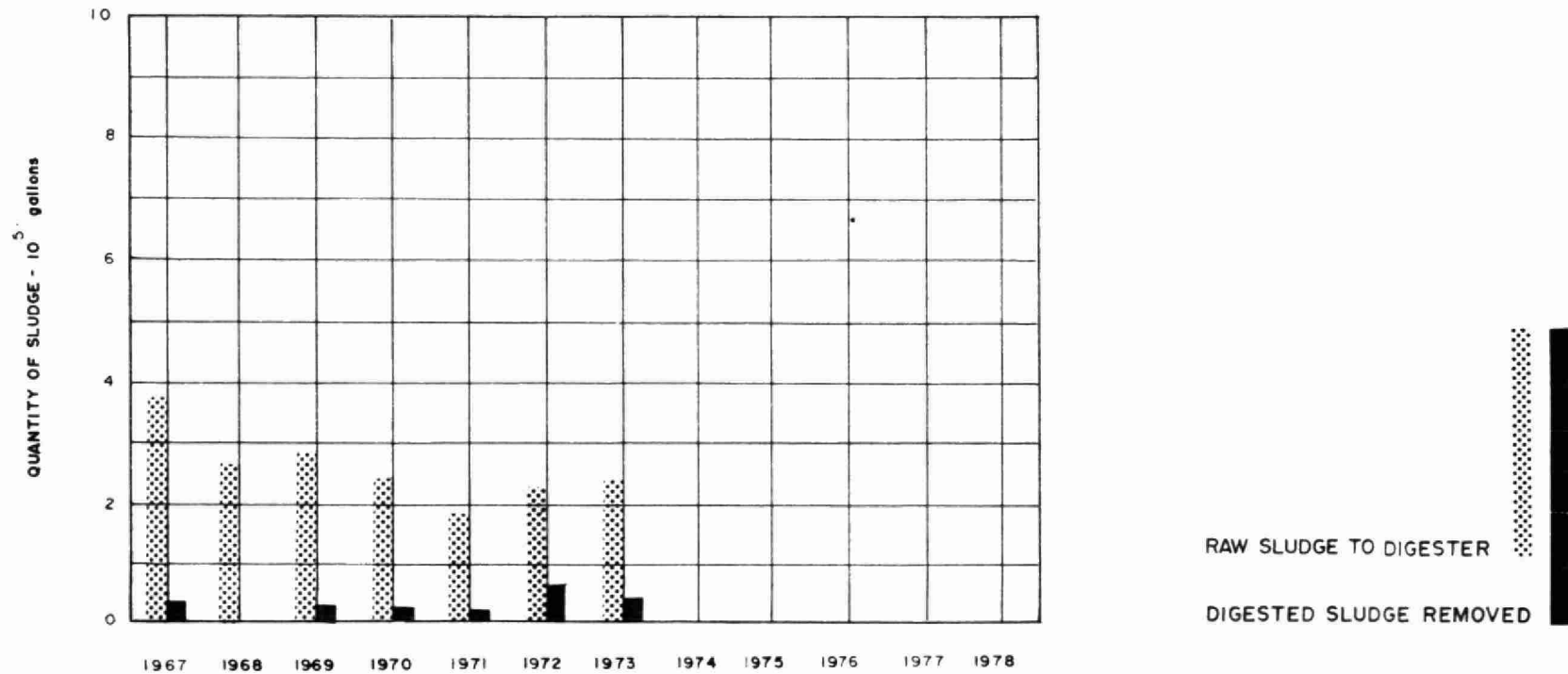
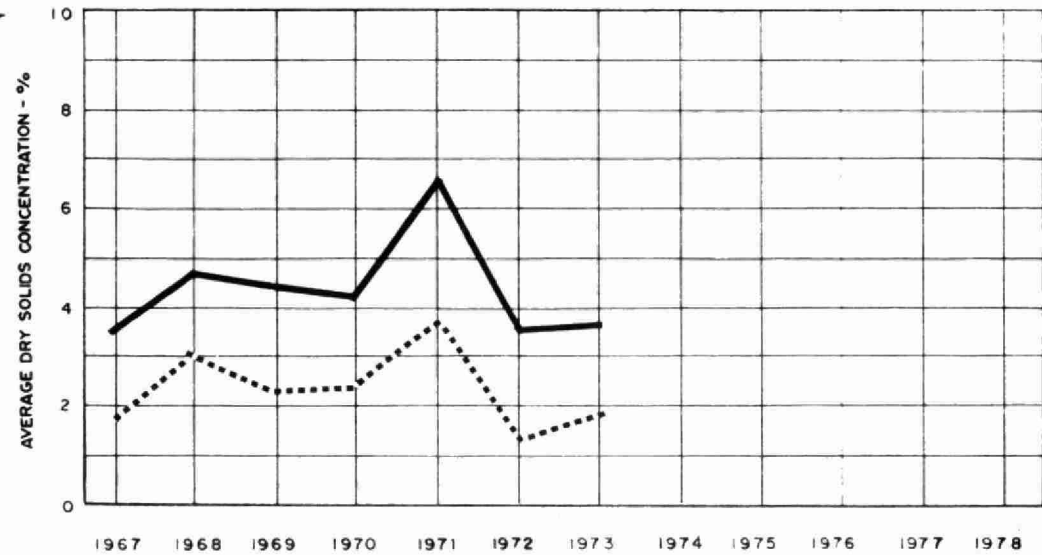
PHOSPHORUS



PLANT INFLUENT - - - - -
 PLANT EFFLUENT —————

DIGESTION

RAW SLUDGE
DIGESTED SLUDGE ———



TREATMENT DATA

MONTH	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
	QUANTITY REMOVED	CL ₂ USED	AVG DOSE	BOD	SUSPENDED SOLIDS	MLSS CONC	F/M	AIR	RAW SLUDGE			DIGESTED SLUDGE			SUPER-NATANT	AMOUNT HAULED
	cubic feet	pounds	mg/l	mg/l	mg/l	mg/l	day ⁻¹	1000 ft ³ lb BOD	QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %	T. S. %	cubic yards
JAN		183	2.7	77	33	1700	0.26		18.6	5.4	71					
FEB		163	3.5	47	35	2700	0.08		18.0	0.5	67					
MAR	8	202	1.5	51	26	2000	0.17		16.2							
APR		193	2.8	28	45	2500	0.06		15.0							
MAY		216	4.3	30	28	1900	0.06		23.4			12.0	3.0			72
JUNE		170	4.5	78	80	2300	0.12		18.6	1.6		6.1	3.7			36
JULY		200	4.9	34	50	2400	0.04		22.5	1.3		2.0	4.1			12
AUG		206	5.3			2200			23.7							
SEPT	4	175	5.4	26	30	2300	0.03		24.3	0.9			4.0		0.1	
OCT	4	190	6.8	87	75	2200	0.11		23.1	0.9			3.5		0.3	
NOV		168	3.2	28	15	1800	0.07		21.6	1.6		8.5	3.2		1.0	50
DEC		159	3.0	36	22	1600	0.11		19.5	1.7					0.1	
TOTAL	16	2225	-	-	-	-	-	-	244.5	-	-	28.6	-	-	-	170
AVG.	0.3 cu. ft/mil gal	185	3.7	52	36	2100	0.09		20.4	1.7	69	7.1	3.6		0.4	42

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